IN THE CLAIMS

1.   (Original) A method for detecting a received signal comprising:

determining a set of particles each modeling a potential signal generated by a transmitter;

measuring a received signal from the transmitter;

calculating a probability for each of the particles, the probability for a particle indicating likelihood of the potential signal modeled by the particle based upon the received signal;

redistributing the particles within a space of potential signals that may be generated by the transmitter based upon the probabilities;

selecting one of the particles based upon the distribution of the particles within the space of potential signals; and

outputting the potential signal modeled by the selected particle.

2.   (Original) The method of Claim 1, further comprising performing the steps of measuring, calculating, and redistributing for a plurality of iterations, wherein over the course of the iterations, at least some of the particles converge upon a particular signal within the space of potential signals.

3.   (Original) The method of Claim 1, further comprising:

determining that the concentration of the particles within a particular portion of the space of potential signals exceeds a threshold concentration; and

in response to determining that the concentration exceeds the threshold concentration, selecting the one of the particles from within the particular portion of the space of potential signals.

4.   (Original) The method of Claim 1, further comprising performing the steps of measuring, calculating, and redistributing for a plurality of iterations, wherein each of the iterations provides information for a portion of each of the potential signals modeled by the particles.

5.   (Original)   The method of Claim 4, wherein each of the potential signals models a sequence of values, and wherein each of the iterations provides measurements directed to a particular value from the sequence.

6.   (Original)   The method of Claim 5, wherein the sequence of values is characterized by an error correction code, the method further comprising selecting the one of the particles based upon the distribution of the particles within the space of potential signals and the error correction code.

7.   (Original)   The method of Claim 1, further comprising:

monitoring processing resources to determine available ones of the processing resources; and

determining a number of the particles to assign to signal detection based upon the available processing resources.

8.   (Original)   The method of Claim 1, further comprising determining a number of the particles to assign to signal detection based upon an assigned quality of service level.

9.   (Original)   The method of Claim 1, further comprising performing the steps of measuring, calculating, and redistributing for a plurality of iterations, wherein for each of the iterations, the step of redistributing removes unlikely ones of the particles and multiplies likely ones of the particles such that the number of particles in each of the iterations remains constant.

10.   (Original) A receiver comprising:

a memory maintaining data detailing a space of potential signals that may be generated by a transmitter;

a distribution module operable to determine a set of particles each modeling a potential signal from the space of potential signals and to redistribute the particles within the space of potential signals based upon probabilities for each of the particles;

a probability module operable to measure a received signal from the transmitter and to calculate a probability for each of the particles, the probability for a particle indicating likelihood of the potential signal modeled by the particle based upon the received signal; and

a signal selection module operable to select one of the particles based upon the distribution of the particles within the space of potential signals and to output the potential signal modeled by the selected particle.

11.   (Original) The receiver of Claim 10, wherein the probability module and the distribution module perform the operations of measuring, calculating, and redistributing for a plurality of iterations, wherein over the course of the iterations, at least some of the particles converge upon a particular signal within the space of potential signals.

12.   (Original) The receiver of Claim 10, wherein the signal selection module is further operable to:

determine that the concentration of the particles within a particular portion of the space of potential signals exceeds a threshold concentration; and

in response to determining that the concentration exceeds the threshold concentration, to select the one of the particles from within the particular portion of the space of potential signals.

13.   (Original) The receiver of Claim 10, wherein the probability module and the distribution module perform the operations of measuring, calculating, and redistributing for a plurality of iterations, wherein each of the iterations provides information for a portion of each of the potential signals modeled by the particles.

14. (Original) The receiver of Claim 13, wherein each of the potential signals models a sequence of values, and wherein each of the iterations provides measurements directed to a particular value from the sequence.

15. (Original) The receiver of Claim 14, wherein the sequence of values is characterized by an error correction code, the signal selection module further operable to select the one of the particles based upon the distribution of the particles within the space of potential signals and the error correction code.

16. (Original) The receiver of Claim 10, further comprising:

a plurality of processing resources; and

the distribution module further operable to determine available ones of the processing resources and to determine a number of the particles to assign to signal detection based upon the available processing resources.

17. (Original) The receiver of Claim 10, wherein the distribution module is further operable to determine a number of the particles to assign to signal detection based upon an assigned quality of service level.

18. (Original) The receiver of Claim 10, wherein the probability module and the distribution module perform the operations of measuring, calculating, and redistributing for a plurality of iterations, wherein for each of the iterations, the distribution module redistributes the particles to remove unlikely ones of the particles and to multiply likely ones of the particles such that the number of particles in each of the iterations remains constant.

19.   (Original) Logic for detecting a received signal, the logic encoded in media and operable when executed to perform the steps of:

determining a set of particles each modeling a potential signal generated by a transmitter;

measuring a received signal from the transmitter;

calculating a probability for each of the particles, the probability for a particle indicating likelihood of the potential signal modeled by the particle based upon the received signal;

redistributing the particles within a space of potential signals that may be generated by the transmitter based upon the probabilities;

selecting one of the particles based upon the distribution of the particles within the space of potential signals; and

outputting the potential signal modeled by the selected particle.

20.   (Original) The logic of Claim 19, further operable when executed to perform the steps of measuring, calculating, and redistributing for a plurality of iterations, wherein over the course of the iterations, at least some of the particles converge upon a particular signal within the space of potential signals.

21.   (Original) The logic of Claim 19, further operable when executed to perform the steps of:

determining that the concentration of the particles within a particular portion of the space of potential signals exceeds a threshold concentration; and

in response to determining that the concentration exceeds the threshold concentration, selecting the one of the particles from within the particular portion of the space of potential signals.

22.   (Original) The logic of Claim 19, operable when executed to perform the steps of measuring, calculating, and redistributing for a plurality of iterations, wherein each of the iterations provides information for a portion of each of the potential signals modeled by the particles.

23.   (Original) The logic of Claim 22, wherein each of the potential signals models a sequence of values, and wherein each of the iterations provides measurements directed to a particular value from the sequence.

24.   (Original)   The logic of Claim 23, wherein the sequence of values is characterized by an error correction code, the method further comprising selecting the one of the particles based upon the distribution of the particles within the space of potential signals and the error correction code.

25.   (Original) The logic of Claim 19, further operable when executed to perform the steps of:

monitoring processing resources to determine available ones of the processing resources; and

determining a number of the particles to assign to signal detection based upon the available processing resources.

26.   (Original) The logic of Claim 19, further operable when executed to perform the step of determining a number of the particles to assign to signal detection based upon an assigned quality of service level.

27.   (Original) The logic of Claim 19, further operable when executed to perform the steps of measuring, calculating, and redistributing for a plurality of iterations, wherein for each of the iterations, the step of redistributing removes unlikely ones of the particles and multiplies likely ones of the particles such that the number of particles in each of the iterations remains constant.

28.   (Original) A receiver comprising:

means for determining a set of particles each modeling a potential signal generated by a transmitter;

means for measuring a received signal from the transmitter;

means for calculating a probability for each of the particles, the probability for a particle indicating likelihood of the potential signal modeled by the particle based upon the received signal;

means for redistributing the particles within a space of potential signals that may be generated by the transmitter based upon the probabilities;

means for selecting one of the particles based upon the distribution of the particles within the space of potential signals; and

means for outputting the potential signal modeled by the selected particle.